

# ORIGINAL

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Director, Safety Division

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**AZ CORP COMMISSION**  
**DOCKET CONTROL**  
**Staff Memorandum**

To: THE COMMISSION

DOCKET NO. RR-03639A-07-0518

From: Safety Division

Date: May 2, 2008

RE: IN THE MATTER OF THE APPLICATION OF THE UNION PACIFIC RAILROAD COMPANY TO ALTER FOUR CROSSINGS OF THE UNION PACIFIC RAILROAD, IN THE CITY OF CASA GRANDE AND IN PINAL COUNTY, ARIZONA AT MONTGOMERY, THORNTON, ANDERSON, AND ETHINGTON ROADS.

## Background

On September 7, 2007, the Union Pacific Railroad Company ("Railroad") filed with the Arizona Corporation Commission ("Commission") an application for approval for the Railroad to alter four crossings of the Railroad in Pinal County ("County"), Arizona by adding a second set of mainline tracks. The first two of these crossings are in the City of Casa Grande ("City") at Montgomery Road, AAR/DOT No. 741-353-H and at Thornton Road, AAR/DOT No. 741-358-S. The third and fourth crossings are in the County at Anderson Road, AAR/DOT No. 741-351-U and Ethington Road AAR/DOT NO. 741-357-K. Commission Safety Division Staff ("Staff") issued data requests and those data requests and the Railroads responses (without attachments), are included as attachments to this memorandum.

The crossings at Anderson Road and Ethington Road are the jurisdiction of Pinal County. The City of Casa Grande is the controlling road authority for Montgomery Road and Thornton Road. With Commission Decision No. 48586, dated 1/10/1978, flashing lights, automatic gates, and bells were installed at the Anderson Road crossing. In Decision No. 48248, dated 9/13/1977, flashing lights, automatic gates, and bells were installed at the Montgomery Road crossing. At Ethington Road, on 1/10/1978, Decision No. 48587 upgraded the crossing with flashing lights, automatic gates, and bells. At Thornton Road, the U.S. Department of Transportation indicates the crossing had lights and automatic gates already in place in 1974. Commission records do not indicate a Commission Decision or date for the installation of the warning devices at Thornton Road.

Arizona Corporation Commission

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Union Pacific's filing in this application requests approval for the Railroad to add a second main track, twenty feet from the center of the existing main track. This application is part of the Railroad's double tracking effort for their Sunset Route across Arizona.

On February 21st, and 22nd, 2007, Staff, the Railroad, the City of Casa Grande, and Pinal County, participated in a diagnostic review of the proposed improvements at Anderson, Ethington, Montgomery and Thornton Roads. All parties present were in agreement to the proposed improvements at the previously mentioned crossings. The following is a break down of each of the four crossings in this application, including information about each crossing that was provided to Staff by the Railroad and its contractors.

### **Geographical Information**

All of these crossings are within Pinal County. The rail line runs in a south-east to north-west direction, parallel to Maricopa-Casa Grande Highway (State Route 238). The first crossing starting on the western end and working east is the Anderson Road crossing which runs in a north - south direction. To the east 4.9 miles is Montgomery Road. Montgomery Road also runs north - south and currently dead-ends just north of the rail line at the Maricopa-Casa Grande Highway. To the east another 3.75 miles is Ethington Road, which runs in a north - south direction. Ethington Road also dead-ends north of the rail line at the Maricopa - Casa Grande Highway. Finally, the last crossing is an additional 2.4 miles east of Ethington at Thornton Road. Thornton is a north-south thoroughfare within the City of Casa Grande.

### **Anderson Road**

The proposed second main track at this crossing will be located north of the existing main track. The Railroad will re-profile a portion of the two lane rural asphalt road to meet the new track. The Railroad's proposed upgrades will replace the existing incandescent flashing lights, gate mechanism's, bells and detection circuitry, with the latest in industry standards to include: 12 inch LED flashing lights, gates, bells, and constant warning time circuitry. A new concrete crossing surface will be added, along with replacing any impacted pavement markings. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface work, with the signal work costing \$281,616 and the crossing surface \$38,600.

Traffic data for Anderson Road was provided to the Railroad by John Kraft of Pinal County. Data provided shows the Average Daily Traffic (ADT) for 2005 to be 1,043 vehicles per day (vpd). Data provided shows the estimated ADT for 2025 to be 56,752 vpd. More recent traffic counts and projections provided by Pinal County support current ADT to be 1,404 vpd and projected ADT for the year 2030 to be 71,655 vpd. Staff will utilize the more current data to analyze this crossing. The current Level of Service ("LOS") for this two lane road is LOS A, for both north and south bound traffic.

**Note:** The American Association of State Highway and Transportation Officials (AASHTO) Geometric Design of Highways and Streets, 2004, states that the Level of Service characterizes the operating conditions on a facility in terms of traffic performance measures related to speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. This is a measure of roadway congestion ranging from LOS A--least congested--to LOS F--most congested. LOS is one of the most common terms used to describe how "good" or how "bad" traffic is projected to be.

The posted speed limit on Anderson Road is 50 MPH. Commission Rail Safety Section, as well as Federal Railroad Administration ("FRA") accident/incident records indicate no accidents on Anderson Road, no injuries, and no fatalities have occurred at this crossing. Alternative routes from this crossing are as follows; to the west 2.44 miles to Hartman Road, and to the east 4.9 miles to Montgomery Road.

### **Montgomery Road**

The proposed second main track at this crossing will be north of the existing main track. The Railroad will re-profile a portion of the two lane asphalt road to meet the new track. The Railroad's proposed upgrades will replace the existing incandescent flashing lights, gate mechanism's, bells and detection circuitry, with the latest in industry standards to include: 12 inch LED flashing lights, gates, bells, and constant warning time circuitry. A new concrete crossing surface will be added, along with replacing any impacted pavement markings. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state. The estimated cost of the proposed railroad crossing upgrade is \$264,845. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface improvements, with the signal improvements costing \$226,245, and the crossing surface \$38,600.

Original traffic data provided by John Kraft of Pinal County and included in the Railroad's application, estimate the ADT for this crossing to be 108 vpd. The projected ADT for the year 2025 is 56,233. More recent traffic counts and projections provided by Pinal County support current ADT to be 156 vpd and projected ADT for the year 2030 to be significantly less than original projections, at 17,315 vpd. Staff will utilize these more current data elements to analyze this crossing in this report. The current LOS for the two lane road is LOS A, for both north and south bound traffic. The posted speed limit on this road is 50 MPH. Commission Rail Safety Section, as well as FRA accident/incident records indicate one accident at this crossing on 3/3/2001, with no injuries or fatalities. Alternative routes from this crossing are as follows; to the west 4.9 miles to Anderson Road, and to the east 3.75 miles to Ethington Road, both are at-grade crossings.

### **Ethington Road**

The proposed second main track at this crossing will be located south of the existing main track. The Railroad will re-profile a portion of the two lane asphalt road to meet the new track. The Railroad's proposed upgrades will replace the existing incandescent flashing lights, gate mechanism's, bells and detection circuitry, with the latest in industry standards to include: 12 inch LED flashing lights, gates, bells, and constant warning time circuitry. A new concrete crossing surface will be added, along with replacing any impacted pavement markings. Additionally, flashing side lights for Cowtown Road will be installed. Cowtown Road runs in an east to west direction, south of the proposed new main track. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state. The estimated cost of the proposed railroad crossing upgrade is \$257,125. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface improvements, with the signal work costing \$ 226,245, and the crossing surface \$30,880.

Traffic data provided by Jennifer Crumbliss of HDR Engineering (a contractor of the Railroad), estimates the ADT for this crossing to be 299 vpd. This count was taken in 2007. The projected ADT for the year 2020 is 38,607 vpd. More recent traffic counts and projections provided by Pinal County support current ADT to be 2,192 vpd and projected ADT for the year 2030 to be significantly less than original projections, at 698 vpd. Staff will utilize these more current data elements to analyze this crossing in this report. The current LOS for the two lane road is LOS A, for both north and south bound traffic. The posted speed limit is 45 MPH. Commission Rail Safety Section, as well as FRA accident/incident records indicate four accidents, with five fatalities. The first accident with fatalities occurred on 4/6/1983, and had two fatalities. The second accident with fatalities occurred on 9/5/1988 and resulted in three fatalities. The other two accidents occurred on 9/27/1985 and 10/16/1996 with no injuries or fatalities. Alternative routes from this crossing are as follows; to the west 3.75 miles to Montgomery Road, and to the east 2.4 miles to Thornton Road, both are at-grade crossings.

### **Thornton Road**

The proposed second main track at this crossing will be south of the existing main track. The railroad will also be installing a new Industry Lead Track to the south of the proposed new main track. The Railroad's proposed upgrades will replace the existing incandescent flashing lights, gate mechanism's, bells and detection circuitry, with the latest in industry standards to include: 12 inch LED flashing lights, gates, bells, and constant warning time circuitry. A new concrete crossing surface will be added, along with replacing any impacted pavement markings. Additionally, new side lights and a "NO LEFT TURN" sign will be installed for Main Avenue. Main Ave. is an east - west roadway that parallels the existing tracks south of the proposed new main. The proposed measures are consistent with safety measures employed at similar at-grade crossings in the state. The estimated cost of the proposed railroad crossing upgrade is \$396,216. The Railroad is paying for the entire cost of the crossing improvements, broken down by signal and crossing surface improvements, with the signal improvements costing \$357,616, and the crossing surface \$38,600.

Traffic data provided by Gwen Geraci from the City of Casa Grande and included in the Railroad's application, estimate the ADT for this crossing to be 2,418. The projected ADT for the year 2025 is 39,654 vpd. More recent traffic counts and projections provided by Pinal County support current ADT to be 7,600 vpd and projected ADT for the year 2030 to be significantly less than original projections, at 9,767 vpd. Staff will utilize these more current data elements to analyze this crossing in this report. The current LOS for the two lane road is LOS A, for both north and south bound traffic. The posted speed limit on this road is 45MPH. Commission Rail Safety Section, as well as FRA accident/incident records indicate three accidents at this crossing, with two fatalities. The first accident occurred on 5/23/1983 and had no injuries. The second accident occurred on 8/7/1989 with no injuries and the third occurred on 7/16/2000, with two fatalities. This crossing was put into service in 1974 and equipped with flashing lights, bells, and automatic gates. Alternative routes from this crossing are as follows; to the west 2.4 miles to Ethington Road, and to the east 1.5 miles to US 84.

### **Train Data**

Data provided by the railroad regarding train movements through these four crossings are as follows, and are the same for all four crossings:

**Train Count:** 48 total average trains per day (46 freight, and 2 passenger trains)

**Train Speed:** 79 mph passenger / 70 mph freight

**Thru Freight/Switching Moves:** All train movements through these four crossings are thru movements with no switching operations, according to Union Pacific, Manager of Train Operations, Rob Henderson. These crossings are used by Amtrak twice per day, three times per week.

### **Schools and Bus Routes**

Information about schools, and school buses, in the area was provided by Sabrina Blanton, from Maricopa County School Districts transportation division, HDR, and Sandy Brown and Brenda Hanson of Casa Grande Transportation Division. There are no schools within four miles of Anderson Road, Montgomery Road or Ethington Road. There are four schools within two miles of Thornton Road. They are as follows:

- ✓ Saguaro Elementary School at 1801 N Center, Casa Grande, AZ 85222
- ✓ Casa Grande Middle School at 300 W Mc Murray, Casa Grande, AZ 85222
- ✓ Desert Winds High School at 1362 N Casa Grande Ave, Casa Grande, AZ 85222
- ✓ Casa Verde High School at 1362 N Casa Grande Ave, Casa Grande, AZ 85222

The City of Maricopa currently has no buses traversing these four at-grade crossings. However, the City of Casa Grande School buses, combined, cross Anderson Road a total of 4 times per day during the week and cross Thornton Road a total of 12 times per day during the week. Montgomery Road and Ethington Road are not used for busing.

### **Hospitals**

The nearest hospital to these crossings is Casa Grande Hospital (approximately 12 miles east of Anderson Road and 4 miles east of Thornton Road). According to information submitted by the Railroad and their contractors, none of these crossings are used extensively by emergency service vehicles.

### **Hazardous Materials**

The railroad gave the following response when asked about hazardous materials crossing these four crossings:

*Union Pacific has been unable to obtain any information responsive to this request. It is Union Pacific's understanding that any vehicle carrying hazardous materials may utilize public crossings unless otherwise posted, but Union Pacific knows of no way it can investigate or determine whether such vehicles use these crossings or with what frequency.*

### **Zoning**

Staff requested the Railroad provide information regarding the type of zoning in adjacent areas from the crossing. The following was their response:

*Union Pacific believes that the second part of CW 1.7 calls for speculation as to whether new housing developments, industrial parks, or other developments will occur in the future. In addition, Union Pacific does not have access to such information, but instead must rely on information provided by others. With those caveats, Union Pacific responds as follows:*

*Pinal County has a 2006 Land Use Map that matches the field diagnostic observations. The CAAG does not have an existing land use map completed at this time. The future planned zoning and the possible developments in the area of these crossings are shown on the City of Casa Grande 2010 Zoning Map and the Development Map on their website. The observed land use from the field diagnostics are shown below:*

<b>Crossing</b>	<b>2007 Observed Land Use</b>	<b>2010 Land Use</b>
<b>Anderson Road</b>	<b>Rural and Industrial</b>	<b>Low Density Residential</b>
<b>Montgomery Road</b>	<b>Rural Undeveloped</b>	<b>Master Planned Community Commercial, Employment</b>
<b>Ethington Road</b>	<b>Rural and Agricultural</b>	<b>Commercial, Employment, Low-density Residential</b>
<b>Thornton Road</b>	<b>Agricultural and Employment</b>	<b>Employment</b>

*The City of Casa Grande and Pinal County planning departments can better answer the question of future developments. They review development impact studies and regulate zoning.*

### **Spur Lines**

The Union Pacific Railroad gave the following answers regarding removal of spur lines located in the area:

Using the definition of a “spur line” or “spur track” as “a stub track of indefinite length diverging from a main track or other track,” ACC Regulation R14-5-101(20), the following spur lines have been removed inside a 10-mile radius of the crossings covered in this application.

<b>Spur Line Removed</b>	<b>Reason for Removal</b>	<b>Date of Removal</b>
<b>Martin Resources 130-ft. spur at MP 898.03</b>	<b>Track no longer needed to serve industry</b>	<b>Unknown</b>
<b>150-ft. vacant spur at MP 905.65</b>	<b>Track no longer needed to serve industry</b>	<b>Unknown</b>
<b>2,650-ft. vacant spur at MP 905.68</b>	<b>Track no longer needed to serve industry</b>	<b>Unknown</b>
<b>* Ak Chin spur at MP 905.74</b>	<b>Track no longer needed to serve industry</b>	<b>Approximately November, 2005</b>
<b>563-ft. vacant spur at MP 905.88</b>	<b>Track no longer needed to serve industry</b>	<b>Unknown</b>
<b>* AS&amp;R spur at MP 913.82</b>	<b>Track no longer needed to serve industry</b>	<b>Approximately November, 2005</b>
<b>Apex Bulk 999-ft. spur at MP 916.00</b>	<b>Track no longer needed to serve industry</b>	<b>Unknown</b>
<b>Apex Bulk 109-ft. spur at MP 917.13</b>	<b>Track no longer needed to serve industry</b>	<b>Unknown</b>
<b>Casa Grande Dispatch 999-ft. spur at MP 918.00</b>	<b>Track no longer needed to serve industry</b>	<b>Unknown</b>

**\* These were the only at-grade crossings removed in order to remove a spur line. See Arizona Corporation Commission Decision No. 68111 docketed September 9, 2005 authorizing closure of these two spur crossings.**

**Source: Union Pacific’s Engineering**

### **FHWA Guidelines Regarding Grade Separation**

The Federal Highway Administration (FHWA) Railroad-Highway Grade Crossing Handbook (Revised Second Edition August 2007) provides nine criteria for determining whether highway-rail crossings should be considered for grade separation or otherwise eliminated across the railroad right of way. The Crossing Handbook indicates that grade separation or crossing elimination should be considered whenever one or more of the nine conditions are met. The nine criteria are applied to this crossing application as follows:

<b>FHWA - GRADE SEPARATION GUIDELINES</b>					
Highway-rail grade crossings should be considered for grade separation or otherwise eliminated across the railroad <b>right of way whenever one or more of the following conditions exist:</b>					
		<b>Anderson</b>	<b>Montgomery</b>	<b>Ethington</b>	<b>Thornton</b>
The highway is a part of the designated Interstate Highway System	Crossing Currently meets the criteria	NO	NO	NO	NO
	Crossing meets the criteria by 2030	NO	NO	NO	NO
The highway is otherwise designed to have full controlled access	Crossing Currently meets the criteria	NO	NO	NO	NO
	Crossing meets the criteria by 2030	NO	NO	NO	NO
The posted highway speed equals or exceeds 70 mph	Crossing Currently meets the criteria	NO	NO	NO	NO
	Crossing meets the criteria by 2030	NO	NO	NO	NO
AADT exceeds 100,000 in urban areas or 50,000 in rural areas	Crossing Currently meets the criteria	NO	NO	NO	NO
	Crossing meets the criteria by 2030 <sup>1</sup>	YES	NO	NO	NO
Maximum authorized train speed exceeds 110 mph	Crossing Currently meets the criteria	NO	NO	NO	NO
	Crossing meets the criteria by 2030	NO	NO	NO	NO
An average of 150 or more trains per day or 300 million gross tons/year	Crossing Currently meets the criteria	NO	NO	NO	NO
	Crossing meets the criteria by 2030 <sup>2</sup>	YES	YES	YES	YES
Crossing exposure (trains/day x AADT) exceeds 1M in urban or 250k in rural; or passenger train crossing exposure exceeds 800k in urban or 200k in rural	Crossing Currently meets the criteria <sup>3</sup>	NO	NO	NO	YES
	Crossing meets the criteria by 2030 <sup>4</sup>	YES	YES	NO	YES
Expected accident frequency for active devices with gates, as calculated by the US DOT Accident Prediction Formula including five-year accident history, exceeds 0.5	Crossing Currently meets the criteria	NO	NO	NO	NO
	Crossing meets the criteria by 2030	Unknown	Unknown	Unknown	Unknown
Vehicle delay exceeds 40 vehicle hours per day	Crossing Currently meets the criteria	NO	NO	NO	NO
	Crossing meets the criteria by 2030 <sup>5</sup>	YES	NO	NO	NO

<sup>1</sup> This table utilizes the most recent projected ADT data as follows: Anderson – 71,655 (2030), Montgomery – 17,315 (2030), Ethington – 698 (2030) and Thornton – 9,767 (2030).

<sup>2</sup> The Railroad is projected to exceed 300 million gross tons as of 2016. This projection is based on the fact that the Railroad is currently exceeding 217 million gross tons with 46 trains per day and is projected to run twice the number of trains (at lengths of up to 8,000 feet instead of the current length of 6,000 feet) by 2016.

<sup>3</sup> The current crossing exposure for Thornton Road is 364,800 (based on 48 trains per day and 7,600 vpd).

<sup>4</sup> The projected crossing exposures utilizing the most recent projected VPD data are as follows: Anderson – 6.0 million, Montgomery – 1.5 Million, Ethington – 58,632 and Thornton – 820,428.

<sup>5</sup> Projected vehicle delay per day utilizing the most recent projected VPD data are as follows: Anderson – 385.4 hours, Montgomery – 29.5 hours, Ethington – 0.6 hours, Thornton – 8.7 hours.



## **Vehicular Delays at Crossings**

Based on the current single track configuration, the railroad gave the following response about delay time for vehicles at the crossings in this application. The delay time is measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset.

**Delays for vehicular (roadway) traffic caused by trains occupying a crossing depend on the length and speed of each train traversing the crossing. Because each train can be unique for these values it would be impossible for Union Pacific accurately to provide the time of delay for vehicular traffic either while allowing trains to pass the crossing or because trains are stopped in the crossing. With that caveat, Union Pacific responds as follows:**

**Union Pacific operations are governed by maximum allowable speeds as identified by timetable. Trains at the crossings involved in this application operate at timetable speeds of 65 mph and the average length of trains is approximately 6,000 feet. At that train length and speed, the average delay for vehicular traffic (1) to allow the train to pass at these crossings, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, is approximately 1.549 minutes.**

**The average time vehicular traffic is delayed (2) due to trains stopped on the track for any purpose, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, varies according to the condition creating the blockage. These varied conditions include mechanical failure such as a broken air hose, a grade crossing accident, or operations such as trains meeting or passing. Given the variety of possible conditions causing trains to be stopped on a crossing, Union Pacific does not catalog the average time vehicular traffic is delayed by stopped trains.**

**With that caveat, Union Pacific responds as follows: A.R.S. § 40-852 requires that, except in cases of unavoidable accident, a train blocking a crossing for more than 15 minutes must be cut to facilitate traffic flow. ACC Regulation R14-5-104(C) (7) and Union Pacific's operating practices allow a train to block a public grade crossing for no more than 10 continuous minutes, unless the train is continuously moving in the same direction during the entire time it occupies the crossing, or the blockage is caused by wrecks, derailments, acts of nature, mechanical failure, or other emergency conditions.**

Based on the railroad's double tracking project, and the projected number of 84 trains per day through this crossing by the year 2016, the railroad gave this response as to what future delay times would be for vehicles at the crossings in this application.

**Delays for vehicular (roadway) traffic caused by trains occupying a crossing depend on the length and speed of each train traversing the crossing. Because each train can be unique for these values it would be impossible for Union Pacific accurately to provide the time of delay for vehicular traffic either while allowing trains to pass the crossing or because trains are stopped in the crossing. With that caveat, Union Pacific responds as follows:**

**Union Pacific operations are governed by maximum allowable speeds as identified by timetable. Trains at the crossings involved in this application are projected to operate at timetable speeds of 65 mph and the average length of trains is projected to be approximately 8,000 feet. At that train length and speed, the average delay for vehicular traffic at these crossings in 2016 (1) to allow the train to pass at the crossing, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, is projected to be approximately 1.899 minutes.**

**The average time vehicular traffic is delayed (2) due to trains stopped on the track for any purpose, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, varies according to the condition creating the blockage. These varied conditions include mechanical failure such as a broken air hose, a grade crossing accident, or operations such as trains meeting or passing. Given the variety of possible conditions causing trains to be stopped on a crossing, Union Pacific does not catalog the average time vehicular traffic is delayed by stopped trains.**

**With that caveat, Union Pacific responds as follows: A.R.S. § 40-852 requires that, except in cases of unavoidable accident, a train blocking a crossing for more than 15 minutes must be cut to facilitate traffic flow. ACC Regulation R14-5-104(C) (7) and Union Pacific's operating practices allow a train to block a public grade crossing for no more than 10 continuous minutes, unless the train is continuously moving in the same direction during the entire time it occupies the crossing, or the blockage is caused by wrecks, derailments, acts of nature, mechanical failure, or other emergency conditions.**

**A traffic delay and queuing analysis was prepared for all crossings in this application utilizing formulas found in the Transportation and Traffic Engineering Handbook, Second Edition. This document is published by the Institute of Transportation Engineers (ITE). Using the most current ADT data available, it was determined that the current daily vehicle delays at the crossings are as follows:**

Anderson Road	0.9 hours of delay per day
Montgomery Road	0.1 hours of delay per day
Ethington Road	0.8 hours of delay per day
Thornton Road	0.9 hours of delay per day

Using the most current data regarding projected future ADT and the Railroad's projection of 84 trains per day, it was determined that daily vehicle delays in the year 2030 may be as follows:

Anderson Road	385.4 hours of delay per day
Montgomery Road	29.5 hours of delay per day
Ethington Road	0.6 hours of delay per day
Thornton Road	8.7 hours of delay per day

Current delays fall well below the FHWA recommended threshold of 40 delay hours per day. Projected delays for the year 2030 for Montgomery, Ethington and Thornton Roads continue to remain below the FHWA threshold. However, Anderson Road is projected to have delays in excess of 380 vehicle hours per day, significantly higher than the 40 hours specified in the FHWA Guidelines. It would be highly likely that the road authority would undergo a project to widen Anderson Road before vehicle delays reach this point. Roadway widening would be one alternative for reducing the delay times for vehicles at the crossing.

Another commonly used measure outlined in the FHWA Guidelines, the so-called Crossing Exposure Index (which is simply the product of the number of trains per day multiplied by the number of vehicles crossing daily) is currently met at the Thornton Road crossing (with a current exposure index of 364,800). Using future projected traffic volumes for 2030, Anderson, Montgomery and Thornton are likely to exceed the FHWA threshold for rural areas of 250,000. It should be noted that the criteria identified in the FHWA material are not mandates, but Guidelines established by the Federal Highway Administration, which serve to alert those having jurisdiction that potential problems may arise. Despite the current lull in home building, the likelihood of continued growth in the corridor between the Cities of Casa Grande and Maricopa is very strong and the projected traffic volumes for the roadways in question could potentially be underestimated.

### **Grade Separation**

With regard to grade separating any of the four crossings, the Railroad gave the following response:

***Union Pacific understands that whether a grade separation is needed is primarily a question of mobility and convenience for vehicular traffic on the roadway, not safety. That is because an at-grade crossing can be safe without constructing a grade separation and eliminating the grade crossing. Based on this understanding, Union Pacific believes the question, of whether a grade separation is needed, is irrelevant to Union Pacific's application to add a second mainline track at these grade crossings. With that caveat, Union Pacific responds as follows:***

***In addition to the foregoing, grade separation is not appropriate for determination at this time because the local communities and roadway authorities have not finally determined whether grade separations at these crossings are desired by those communities and authorities, what priority grade separations would have with***

***respect to other public projects, when construction of grade separations could be begun and finished, and how grade separations would be funded. Union Pacific is aware that the local communities and roadway authorities are studying these matters (including ADOT's study concerning Maricopa Road) outside the context of Union Pacific's applications for grade crossing alterations.***

***Furthermore, Union Pacific believes the four crossings involved in this application are safe without constructing grade separations. This conclusion is supported by the fact that the Federal Highway Administration authorizes the use of gates and lights at multiple-track grade crossings as proposed in this application.***

Staff has utilized the FHWA Guidelines to determine the potential need for grade separation at these crossings.

Based on currently existing conditions, three of the four crossings in this application do not meet any of the nine criteria for consideration of grade separation. One crossing (Thornton Road) meets only one of the nine criteria. All crossings are in very rural areas with no immediate plans for significant development. Therefore, Staff does not recommend that grade separation be seriously considered for any of these crossings at this time.

Projected data indicates that Anderson Road is likely to meet four of the nine criteria and Montgomery and Thornton Roads are likely to meet two of the nine criteria by the year 2030. Staff would encourage the City, County and the Railroad to monitor these crossings to determine the need for grade separation at a future time.

### **Crossing Closures**

Given the amount of growth in the area, and the projected future ADT, staff would not recommend a closure of any of these crossings at this time.

### **Pinal County Support**

According to a letter dated January 9, 2008 written by David Snider, Chairman, Pinal County Board of Supervisors, Pinal County is in full support of Union Pacific's double track project. Specifically, Pinal County fully supports and approves Union Pacific's construction of one additional main track over and across public roadway crossings of the Union Pacific tracks within Pinal County. Additionally, the letter requests the Arizona Corporation Commission approve each application filed by Union Pacific for authority to install a second main track, at grade, for all crossings within Pinal County.

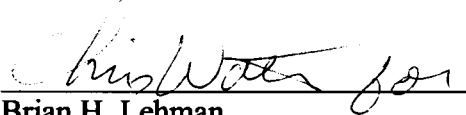
### **Staff Conclusions**

Having reviewed all applicable data, Staff supports the Railroad's application. Staff believes that the upgrades are in the public interest and are reasonable. Having said that, staff believes that the measures proposed by the Railroad are consistent with other similar at-grade crossings in the State and will provide for the public's safety. Therefore, Staff recommends approval of the Railroad's application.



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Dave Raber  
Director  
Safety Division



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Brian H. Lehman  
Railroad Supervisor  
Safety Division





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Streaming 100%

Point 32°55'27.86" N 111°50'04.30" W elev 1337 ft 3.49 mi Eye alt 12.33 mi



PINAL COUNTY  
BOARD OF SUPERVISORS

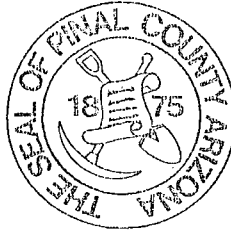
CHRIS WATSON

LIONEL D. RUIZ, District 1  
Mammoth

SANDIE SMITH, District 2  
Apache Junction

DAVID SNIDER, District 3  
Casa Grande

January 9, 2008



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County Manager

DOCKET CONTROL

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2200 North Central Avenue  
Suite 300  
Phoenix, Arizona 85004

RR

03639A-07-0518

Re: Support for Union Pacific Railroad Company's Double-Track Project

Dear Mr. Raber:

This letter will serve to inform you that Pinal County fully supports Union Pacific Railroad Company's project to construct a second main line railroad track through Pinal County and the State of Arizona, known as "Union Pacific's Double-Track Project." Specifically, Pinal County fully supports and approves, and will to cooperate with Union Pacific concerning, construction of one additional main track over and across public roadway crossings of the Union Pacific Railroad tracks at grade within Pinal County, as listed on Exhibit A attached hereto. Pinal County therefore requests that the Arizona Corporation Commission approve each application filed by Union Pacific for authority to install a second main line railroad track at grade at those crossings listed on Exhibit A.

If it would be helpful to the Commission or its Staff, Pinal County would be pleased to have its representative appear at any hearings or meetings concerning Union Pacific's crossing alteration applications to the Commission to confirm the County's support and approval of those applications. If you have any questions or wish to discuss the County's position with respect to these matters, please do not hesitate to contact me.

Sincerely,

David Snider, Chairman

c: Board of Supervisors  
Ken Buchanan, Assistant County Manager  
for Development Services  
Chief Civil Deputy County Attorney, Chris Roll

**ARIZONA CORPORATION COMMISSION**  
**UNION PACIFIC'S RESPONSES TO REVISED FIRST SET OF DATA REQUESTS**  
**DOCKET NO. RR-03639A-07-0518**  
**Anderson Road, Montgomery Road, Ethington Road**  
**and Thornton Road in Pinal County & City of Casa Grande, AZ**  
**DECEMBER 7, 2007**

CW 1.1 Provide Average Daily Traffic Counts ("ADT") for each of the four locations.

**Response:** *With the exception of Ethington Road, as to which HDR provided the information, Union Pacific Railroad Company ("Union Pacific") must rely on information provided by others to provide ADT's. With that caveat, Union Pacific responds as follows:*

<b>Crossing</b>	<b>Current ADT</b>	<b>Source</b>
<b>Anderson Road</b>	<b>1,043</b>	<b>CAAG 2005 Traffic Count data provided by John Kraft</b>
<b>Montgomery Road</b>	<b>108</b>	<b>CAAG 2005 Traffic Count data provided by John Kraft</b>
<b>Ethington Road</b>	<b>299</b>	<b>2007 Traffic Counts by HDR</b>
<b>Thornton Road</b>	<b>2,418</b>	<b>2007 City of Casa Grande Traffic Count data provided by Gwen Geraci</b>

**Source:** 1) John Kraft @ Pinal County, PO Box 727, Florence, AZ 85232, (520) 866-6480. (Pinal County Counts)  
2) Jennifer Crumbliss, HDR Engineering, 8404 Indian Hills Drive, Omaha, NE 68114. (HDR Traffic Counts)  
3) Gwen Geraci, City of Casa Grande Civil Engineer, 3181 N. Lear Avenue, Casa Grande, AZ (520) 421-8625 (City of Casa Grande Traffic Counts)

CW 1.2 Please describe the current Level of Service ("LOS") at each intersection.

**Response:** *Union Pacific believes that the level of service analysis is concerned with mobility rather than safety. In addition, with the exception of Ethington Road, as to which HDR provided the information, Union Pacific must rely on information provided by others to calculate the level of service. With those caveats, Union Pacific responds as follows:*

<b>Crossing</b>	<b>LOS</b>
<b>Anderson Road</b>	<b>Northbound (LOS=A), Southbound (LOS=A)</b>
<b>Montgomery Road</b>	<b>Northbound (LOS=A), Southbound (LOS=A)</b>
<b>Ethington Road</b>	<b>Northbound (LOS=A), Southbound (LOS=A)</b>
<b>Thornton Road</b>	<b>Northbound (LOS=A), Southbound (LOS=A)</b>



**Source:** *Traffic level of service calculations were performed using Synchro and SimTraffic programs under the direction of Heidi Schneider with HDR Engineering, Inc at 5210 E Williams Circle, Suite 503, Tucson, AZ 85711, (520) 584-3600. The train delay times utilized in the analysis were provided by Tom Domres, with TKDA at 750 Shoreline Drive, Suite 100, Aurora, IL 60504, (630) 499-4110 via Union Pacific.*

CW 1.3 Provide any traffic studies done by the road authorities for each area.

**Response:** *1) The 2007 Pinal County Comprehensive Plan on <http://www.co.pinal.az.us/PlanDev/PDCP/CPInfo.asp>  
2) 2006 Pinal County SATS (Small Area Transportation Study) on <http://www.co.pinal.az.us/PubWorks> under "Downloads"  
3) 2007 Final City of Casa Grande SATS on [http://www.ci.casa-grande.az.us/dev\\_center/development\\_center.php](http://www.ci.casa-grande.az.us/dev_center/development_center.php)  
4) Other development traffic studies contact:  
Leila A. DeMaree, Senior Planner  
City of Casa Grande  
510 E. Florence Blvd.,  
Casa Grande, AZ 85222*

CW 1.4 Provide distances in miles to the next public crossing on either side of the proposed project location. Are any of these grade separations?

**Response:** *Union Pacific believes that the last question in CW 1.4 raises an issue that is irrelevant, namely, whether either of the next public crossings is a grade separation. With that caveat, Union Pacific responds as follows:*

<b>Crossing</b>	<b>TO THE WEST</b>	<b>TO THE EAST</b>
<b>Anderson Road</b>	<b>2.44 miles to Hartman Rd</b>	<b>4.9 miles to Montgomery Rd</b>
<b>Montgomery Road</b>	<b>4.9 miles to Anderson Rd</b>	<b>3.75 miles to Ethington Rd</b>
<b>Ethington Road</b>	<b>3.75 miles to Montgomery Rd</b>	<b>2.4 miles to Thornton Rd</b>
<b>Thornton Road</b>	<b>2.4 miles to Ethington Rd</b>	<b>1.5 miles to US 84</b>

*The only adjacent crossing that is a grade separation is at US 84 east of Thornton Rd.*

**Source:** *HDR's use of the Union Pacific Straight-line Diagrams and [www.MapQuest.com](http://www.MapQuest.com).*

CW 1.5 How and why was grade separation not decided on at this time? Please provide any studies that were done to support these answers.

**Response:** *Union Pacific understands that whether a grade separation is needed is primarily a question of mobility and convenience for vehicular traffic on the roadway, not safety. That is because an*

*at-grade crossing can be safe without constructing a grade separation and eliminating the grade crossing. Based on this understanding, Union Pacific believes the question, of whether a grade separation is needed, is irrelevant to Union Pacific's application to add a second mainline track at these grade crossings. With that caveat, Union Pacific responds as follows:*

*In addition to the foregoing, grade separation is not appropriate for determination at this time because the local communities and roadway authorities have not finally determined whether grade separations at these crossings are desired by those communities and authorities, what priority grade separations would have with respect to other public projects, when construction of grade separations could be begun and finished, and how grade separations would be funded. Union Pacific is aware that the local communities and roadway authorities are studying these matters (including ADOT's study concerning Maricopa Road) outside the context of Union Pacific's applications for grade crossing alterations.*

*Furthermore, Union Pacific believes the four crossings involved in this application are safe without constructing grade separations. This conclusion is supported by the fact that the Federal Highway Administration authorizes the use of gates and lights at multiple-track grade crossings as proposed in this application.*

CW 1.6 If this crossing were to be grade separated, provide a cost estimate of the project.

**Response:** *Again, Union Pacific understands that whether a grade separation is needed is primarily a question of mobility and convenience for vehicular traffic on the roadway, not safety. That is because an at-grade crossing can be safe without constructing a grade separation and eliminating the grade crossing. Based on this understanding, Union Pacific believes the question of whether a grade separation is needed is irrelevant to Union Pacific's application to add a second mainline track at these grade crossings. In addition, any attempt to estimate the cost to construct a grade separation would be speculative in the absence of a detailed study of the particular crossing in question. With those caveats, Union Pacific responds as follows:*

*In connection with its recent application to upgrade the crossing of Union Pacific tracks at the intersection of Power and Pecos Roads, RR-03639A-07-0398, the Town of Gilbert estimated that a grade separation at that location would cost \$22 million. Depending on the particular crossing involved, a reasonable range for the costs of constructing a grade separation would be between \$20 million and \$40 million.*

CW 1.7 Please describe what the surrounding areas are zoned for near this intersection. i.e. Are there going to be new housing developments, industrial parks, etc.?

**Response:** *Union Pacific believes that the second part of CW 1.7 calls for speculation as to whether new housing developments, industrial parks, or other developments will occur in the future. In addition, Union Pacific does not have access to such information, but instead must rely on information provided by others. With those caveats, Union Pacific responds as follows:*

*Pinal County has a 2006 Land Use Map that matches the field diagnostic observations. The CAAG does not have an existing land use map completed at this time. The future planned zoning and the possible developments in the area of these crossings are shown on the City of Casa Grande 2010 Zoning Map and the Development Map on their website. The observed land use from the field diagnostics are shown below:*

<i>Crossing</i>	<i>2007 Observed Land Use</i>	<i>2010 Land Use</i>
<i>Anderson Road</i>	<i>Rural and Industrial</i>	<i>Low Density Residential</i>
<i>Montgomery Road</i>	<i>Rural Undeveloped</i>	<i>Master Planned Community Commercial, Employment</i>
<i>Ethington Road</i>	<i>Rural and Agricultural</i>	<i>Commercial, Employment, Low- density Residential</i>
<i>Thornton Road</i>	<i>Agricultural and Employment</i>	<i>Employment</i>

*The City of Casa Grande and Pinal County planning departments can better answer the question of future developments. They review development impact studies and regulate zoning.*

**Source:** *1) 2006 Pinal County SATS (Small Area Transportation Study) on <http://www.co.pinal.az.us/PubWorks> under "Downloads"*  
*2) The Central Arizona Association of Governments' Planning Department (CAAG) <http://www.caagcentral.org/GIS/gishome.html>*  
*3) The City of Casa Grande <http://www.ci.casa-rande.az.us/gis/maps.php>*  
*Leila A. DeMaree, Senior Planner*  
*City of Casa Grande*  
*510 E. Florence Blvd.,*  
*Casa Grande, AZ 85222*

CW 1.8 Please supply the following: number of daily train movements through the crossing, speed of the trains, and the type of movements being made (i.e. thru freight or switching). Is this a passenger train route?

**Response:** *The movements are the same for these four crossings.*

**Train Count:** 48 total average trains per day (46 freight, 2 passenger)  
**Train Speed:** 79 mph passenger / 70 mph freight  
**Thru Freight/Switching Moves:** All moves through these four crossings are thru freight. (According to MTO Rob Henderson there are no switching moves at these crossings.)

*These crossings are used by Amtrak twice per day, three times per week.*

**Source:** *Union Pacific's Manager of Train Operations, Rob Henderson.*

CW 1.9 Please provide the names and locations of all schools (elementary, junior high and high school) within the area of the crossing.

**Response:**

*There are no schools within four (4) miles of Anderson Road, Montgomery Road or Ethington Road. There are four schools within two (2) miles of Thornton Road, as follows:*

*Saguaro Elementary School @ 1801 N Center, Casa Grande, AZ 85222  
Casa Grande Middle School @ 300 W Mc Murray, Casa Grande, AZ 85222  
Desert Winds High School @ 1362 N Casa Grande Ave, Casa Grande, AZ 85222  
Casa Verde High School @ 1362 N Casa Grande Ave, Casa Grande, AZ 85222*

**Source:** *1) Jennifer Crumbliss, Senior Transportation Engineer with HDR, Engineering, Inc. at 8404 Indian Hills Drive, Omaha, NE 68114, (402) 926-7049 used the internet site [www.GoggleEarth.com](http://www.GoggleEarth.com) also, Juan Cruz, Roadway Designer with HDR in Tucson, physically verified hospital and school locations on June 14, 2007.  
2) Sandy Brown, Assistant Transportation Supervisor for Casa Grande Elementary District #4 located at 1400 N. Pinal Ave, Casa Grande, AZ 85222, (520) 836-5231.  
3) Brenda Hanson, Transportation Supervisor for Casa Grande High School @ 300 W McMurray, Casa Grande, AZ 85222, (520) 316-3382.  
4) Sabrina Blanton, in transportation for the Maricopa School District, located at 45012 W. Honeycutt Avenue, Maricopa, Arizona 85239, (520) 568-5120.*

CW 1.10 Please provide school bus route information concerning the crossing, including the number of times a day a school bus crosses this crossing.

**Response:** *The City of Maricopa currently has no buses traversing these four at-grade crossings. However, the City of Casa Grande School buses, combined, cross Anderson Road a total of 4 times per day during the*

*week and cross Thornton Road a total of 12 times per day during the week. Montgomery Road and Ethington Road are not used for busing to our knowledge.*

**Source:** *1) Sabrina Blanton, in transportation for the Maricopa School District, located at 45012 W. Honeycutt Avenue, Maricopa, Arizona 85239, (520) 568-5120.  
2) Sandy Brown, Assistant Transportation Supervisor for Casa Grande Elementary District #4 located at 1400 N. Pinal Ave, Casa Grande, AZ 85222, (520) 836-5231.*

CW 1.11 Please provide information about any hospitals in the area and whether the crossing is used extensively by emergency service vehicles.

**Response:** *The nearest hospital to these crossings is Casa Grande Hospital (approximately 12 miles away east of Anderson Road and 4 miles north of Thornton Road). To our knowledge, none of these crossings are used extensively by emergency service vehicles.*

**Source:** *Jennifer Crumbliss, Senior Transportation Engineer with HDR, Engineering, Inc. at 8404 Indian Hills Drive, Omaha, NE 68114, (402) 926-7049 used the internet site [www.GoggleEarth.com](http://www.GoggleEarth.com) also, Juan Cruz, Roadway Designer with HDR in Tucson, physically verified hospital and school locations on June 14, 2007.*

CW 1.12 Please provide the total cost of improvements to each crossing.

**Response:**

<i>Crossing</i>	<i>Crossing Surface</i>	<i>Signal</i>	<i>Total</i>
<i>Anderson Road</i>	<i>\$38,600.00</i>	<i>\$281,616.00</i>	<i>\$320,216.00</i>
<i>Montgomery Road</i>	<i>\$38,600.00</i>	<i>\$226,245.00</i>	<i>\$264,845.00</i>
<i>Ethington Road</i>	<i>\$30,880.00</i>	<i>\$226,245.00</i>	<i>\$257,125.00</i>
<i>Thornton Road</i>	<i>\$38,600.00</i>	<i>\$357,616.00</i>	<i>\$396,216.00</i>

**Source:** *Union Pacific's Engineering.*

ORIGINAL AND THIRTEEN COPIES  
of the foregoing filed this 7<sup>th</sup> day of  
December, 2007, with:

Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, Arizona 85007

COPY of the foregoing e-mailed and  
mailed this 7<sup>th</sup> day of December, 2007, to:

Mr. David Raber  
Mr. Brian Lehman  
Mr. Chris Watson  
Railroad Safety Section  
Arizona Corporation Commission  
2200 North Central Avenue, #300  
Phoenix, Arizona 85004

COPY of the foregoing hand-delivered  
this 7<sup>th</sup> day of December, 2007, to:

Janice M. Alward, Esq.  
Charles H. Hains, Esq.  
Kenya Collins, Esq.  
Legal Division  
Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, Arizona 85007

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Mary Ann Palmer

Chris Watson

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AZ CORP COMMISSION  
DOCKET CONTROL

**ARIZONA CORPORATION COMMISSION  
UNION PACIFIC'S RESPONSES TO STAFF'S SECOND SET OF DATA REQUESTS  
DOCKET NO. RR-03639A-07-0518  
Anderson Road, Montgomery Road, Ethington Road, Thornton Road  
APRIL 4, 2008**

CW 2.1 Based on the current single track configuration at the crossings specified by this application, please provide the current traffic blocking delay per train. Please indicate the time in which vehicular traffic is delayed (1) to allow the train to pass at a crossing and (2) due to trains stopped on the track for any purpose. The delay is measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset.

***Response:*** Delays for vehicular (roadway) traffic caused by trains occupying a crossing depend on the length and speed of each train traversing the crossing. Because each train can be unique for these values it would be impossible for Union Pacific accurately to provide the time of delay for vehicular traffic either while allowing trains to pass the crossing or because trains are stopped in the crossing. With that caveat, Union Pacific responds as follows:

Union Pacific operations are governed by maximum allowable speeds as identified by timetable. Trains at the crossings involved in this application operate at timetable speeds of 65 mph and the average length of trains is approximately 6,000 feet. At that train length and speed, the average delay for vehicular traffic (1) to allow the train to pass at these crossings, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, is approximately 1.549 minutes.

The average time vehicular traffic is delayed (2) due to trains stopped on the track for any purpose, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, varies according to the condition creating the blockage. These varied conditions include mechanical failure such as a broken air hose, a grade crossing accident, or operations such as trains meeting or passing. Given the variety of possible conditions causing trains to be

stopped on a crossing, Union Pacific does not catalog the average time vehicular traffic is delayed by stopped trains.

With that caveat, Union Pacific responds as follows: A.R.S. § 40-852 requires that, except in cases of unavoidable accident, a train blocking a crossing for more than 15 minutes must be cut to facilitate traffic flow. ACC Regulation R14-5-104(C)(7) and Union Pacific's operating practices allow a train to block a public grade crossing for no more than 10 continuous minutes, unless the train is continuously moving in the same direction during the entire time it occupies the crossing, or the blockage is caused by wrecks, derailments, acts of nature, mechanical failure, or other emergency conditions.

**Source:** Union Pacific's Engineering, in consultation with TKDA at 750 Shoreline Drive, Suite 100, Aurora, IL 60504, (630) 499-4110

CW 2.2 Based on anticipated double tracking at the crossings covered by this application and projected train traffic of 84 trains per day by 2016, please provide the projected (2016) blocking delay per train. Please indicate the time in which vehicular traffic is delayed (1) to allow the train to pass at a crossing and (2) due to trains stopped on the track for any purpose. The delay is measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset.

**Response:** Delays for vehicular (roadway) traffic caused by trains occupying a crossing depend on the length and speed of each train traversing the crossing. Because each train can be unique for these values it would be impossible for Union Pacific accurately to provide the time of delay for vehicular traffic either while allowing trains to pass the crossing or because trains are stopped in the crossing. With that caveat, Union Pacific responds as follows:

Union Pacific operations are governed by maximum allowable speeds as identified by timetable. Trains at the crossings involved in this application are projected to operate at timetable speeds of 65 mph and the average length of trains is projected to be approximately 8,000 feet. At that train length and speed, the average delay for vehicular traffic at these crossings in 2016 (1) to allow the train to pass at the crossing, measured from the point that the warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, is projected to be approximately 1.899 minutes.

The average time vehicular traffic is delayed (2) due to trains stopped on the track for any purpose, measured from the point that the



warning devices are activated at the crossing to the time after the train has cleared the crossing and the warning devices are reset, varies according to the condition creating the blockage. These varied conditions include mechanical failure such as a broken air hose, a grade crossing accident, or operations such as trains meeting or passing. Given the variety of possible conditions causing trains to be stopped on a crossing, Union Pacific does not catalog the average time vehicular traffic is delayed by stopped trains.

With that caveat, Union Pacific responds as follows: A.R.S. § 40-852 requires that, except in cases of unavoidable accident, a train blocking a crossing for more than 15 minutes must be cut to facilitate traffic flow. ACC Regulation R14-5-104(C)(7) and Union Pacific's operating practices allow a train to block a public grade crossing for no more than 10 continuous minutes, unless the train is continuously moving in the same direction during the entire time it occupies the crossing, or the blockage is caused by wrecks, derailments, acts of nature, mechanical failure, or other emergency conditions.

**Source:** Union Pacific's Engineering, in consultation with TKDA at 750 Shoreline Drive, Suite 100, Aurora, IL 60504, (630) 499-4110

CW 2.3 Please provide the posted vehicular speed limit for the roads intersecting each crossing covered in this application.

**Response:**

Crossing	Posted Vehicular Speed Limit
Anderson Road	50 mph *
Montgomery Road	40 mph *
Ethington Road	45 mph *
Thornton Road	40 mph

\* The speed limits given are those posted for the roads intersecting these crossings. However as a practical matter, maximum speed for vehicular traffic at these crossings is approximately 15 mph because these crossings are within 150 feet of a stop condition.

**Source:** Jennifer Crumbliss, Senior Transportation Engineer with HDR Engineering, Inc. at 8404 Indian Hills Drive, Omaha, NE 68114

CW 2.4 Please provide information as to whether passenger buses (other than school buses) utilize th[ese] crossing[s] and the number of times a day a passenger bus crosses.

**Response:** Union Pacific does not have access to such information, but instead must rely on information provided by others. With that caveat, Union Pacific responds that it is not aware of any public passenger buses that utilize the crossings involved in this application.

**Source:**

- 1) Christine McMurdy, Public Works Department, City of Goodyear, 190 N. Litchfield Road, Goodyear, AZ 85338, (623) 932-1637
- 2) Karen Thomas, GIS Services Department, City of Maricopa, 45145 W. Madison Avenue, P.O. Box 610, Maricopa, AZ 85239, (520) 568-9098
- 3) Aaron Cart, GIS Department, City of Casa Grande, 510 E. Florence Blvd., Casa Grande, AZ 85222, (520) 421-8625
- 4) Belinda Cota, Planning Department, City of Eloy, 628 N. Main Street, Eloy, AZ 85231, (520) 466-2578

CW 2.5 Please provide information as to whether vehicles carrying hazardous materials utilize th[ese] crossing[s] and the number of times a day a vehicle carrying hazardous materials crosses.

**Response:** Union Pacific has been unable to obtain any information responsive to this request. It is Union Pacific's understanding that any vehicle carrying hazardous materials may utilize public crossings unless otherwise posted, but Union Pacific knows of no way it can investigate or determine whether such vehicles use these crossings or with what frequency.

CW 2.6 Please indicate whether any spur lines have been removed within the last three years inside a 10 mile radius of any crossings covered in this application. Please include the reason for the removal, date of the removal and whether an at-grade crossing or crossings were removed in order to remove the spur line.

**Response:** Using the definition of a "spur line" or "spur track" as "a stub track of indefinite length diverging from a main track or other track," ACC Regulation R14-5-101(20), the following spur lines have been removed inside a 10-mile radius of the crossings covered in this application.

Spur Line Removed	Reason for Removal	Date of Removal
Martin Resources 130-ft. spur at MP 898.03	Track no longer needed to serve industry	Unknown
150-ft. vacant spur at MP 905.65	Track no longer needed to serve industry	Unknown
2,650-ft. vacant spur at MP 905.68	Track no longer needed to serve industry	Unknown
* Ak Chin spur at MP 905.74	Track no longer needed to serve industry	Approximately November, 2005
563-ft. vacant spur at MP 905.88	Track no longer needed to serve industry	Unknown
* AS&R spur at MP 913.82	Track no longer needed to serve industry	Approximately November, 2005
Apex Bulk 999-ft. spur at MP 916.00	Track no longer needed to serve industry	Unknown
Apex Bulk 109-ft. spur at MP 917.13	Track no longer needed to serve industry	Unknown
Casa Grande Dispatch 999-ft. spur at MP 918.00	Track no longer needed to serve industry	Unknown

\* These were the only at-grade crossings removed in order to remove a spur line. See Arizona Corporation Commission Decision No. 68111 docketed September 9, 2005 authorizing closure of these two spur crossings.

**Source:** Union Pacific's Engineering

CW 2.7 Please indicate which, if any, spur lines have been removed within the last three years inside a 10 mile radius of any crossings covered in this application were done at the direction or request of (1) the relevant road authority, (2) the industry served by the spur line, or (3) by the railroad.

**Response:** To the best of Union Pacific's present knowledge, all of the spur lines shown above were removed at the direction or request of the railroad.

**Source:** Union Pacific's Engineering

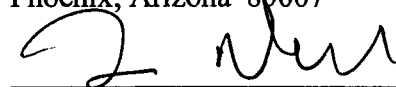
ORIGINAL AND THIRTEEN COPIES  
of the foregoing filed this 3 day of  
April, 2008, with:

Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, Arizona 85007

COPY of the foregoing e-mailed and  
mailed this 3 day of April, 2008, to:

Mr. David Raber  
Mr. Brian Lehman  
Mr. Chris Watson  
Railroad Safety Section  
Arizona Corporation Commission  
2200 North Central Avenue, #300  
Phoenix, Arizona 85004

Charles H. Hains, Esq.  
Legal Division  
Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, Arizona 85007



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Dan Norkol